

FOLIA TAXONOMICA 9. NEW SPECIES OF *PASSIFLORA* SUBG. *DECALOBA*
(PASSIFLORACEAE) FROM NORTHERN SOUTH AMERICA

Christian Feuillet

Department of Botany, MRC-166
Smithsonian Institution
P.O. Box 37012
Washington, DC 20013-7012, U.S.A.
feuillet@si.edu

John M. MacDougal

Division of Arts and Sciences
Harris-Stowe State University
3026 Laclede Avenue
St. Louis, Missouri 63103, U.S.A.
threebrane@sigmaxi.net

ABSTRACT

Two new species of *Passiflora* subgenus *Decaloba* are described from northern South America: ***P. angusta*** and ***P. rufa***. The status of *P. cryptopetala* Hoehne is discussed. The three species are referred to *Passiflora* supersection *Auriculata* J.M. MacDougal & Feuillet on the basis of plicate opercula, both petiolar and laminar nectaries, linear petals, attenuate coronal filaments, and transversely ridged seeds. A key to the species of the supersection is provided.

RÉSUMÉ

Deux espèces nouvelles de *Passiflora* sous-genre *Decaloba* du Nord de l'Amérique du Sud, ***P. angusta*** et ***P. rufa***, sont décrites. Le statut de *P. cryptopetala* Hoehne est discuté. Les trois espèces sont placées dans *Passiflora* supersection *Auriculata* J.M. MacDougal & Feuillet au vu des opercules plissés, des glandes pétiolaires et laminaires, des pétales linéaires, des filaments de la couronne atténués et des graines striées transversalement. Une clé des espèces de la supersection est fournie.

Our work toward the treatment of the Passifloraceae for Flora of the Guianas (CF) and the study of subgenus *Decaloba* (DC.) Rchb. (JMM) brought attention to collections of *Passiflora* L. that proved to represent new species related to *Passiflora auriculata* Kunth, a tropical American species of subg. *Decaloba*. Many collections from the Guianas previously referred to *P. auriculata* represent *P. rufa* sp. nov., a species actually more common than *P. auriculata* in French Guiana. Other collections from Brazil and the Guianas belong in two other species, *P. angusta* sp. nov. from the Guayana shield and *P. cryptopetala* Hoehne from Amazonian Brazil. The three species and *P. auriculata* share several characters with *P. fanchonae* Feuillet (French Guiana), *P. ferruginea* Mast. (Peru), and *P. jatunsachensis* Schwerdtfeger (Ecuador) and are put in the same species group. Killip (1938) placed *P. auriculata* and *P. ferruginea* in series [Auriculatae] (invalid: no Latin description) at the base of his subgenus [Plectostemma] (invalid: includes the type of subg. *Decaloba*).

We have proposed supersection *Auriculata* J.M. MacDougal & Feuillet (Feuillet & MacDougal 1999, 2003; MacDougal & Feuillet 2004) for those species. *Passiflora* supersect. *Auriculata* belongs to subgenus *Decaloba*. The tip of growing stems is not cernuous. The laminar nectaries are scattered on the leaf blade and are not marginal or submarginal. Two paired petiolar nectaries are present and are conspicuously enlarged and elaborated laterally into flaps or ear-like appendages of the petiole, with the glandular area facing downward. The flowers have reduced linear petals, attenuate coronal filaments, and a plicate operculum. The seeds are transversely grooved.

The combination of laminar leaf nectaries position, a plicate operculum, and grooved seeds clearly places supersection *Auriculata* in *Passiflora* subg. *Decaloba*. In this subgenus, supersect. *Auriculata* is basal among the advanced groups that have lost the rpoC1 intron (Hansen et al. 2006). It still has petiolar nectaries like supersect. *Cieca* (Medik.) J.M. MacDougal & Feuillet or supersect. *Bryonioides* (Harms) J.M. MacDougal & Feuillet, yet is advanced in having nonmarginal laminar nectaries and grooved seeds like supersect. *Decaloba* (DC.) J.M. MacDougal & Feuillet.

An interesting natural history note (L. Gilbert, per. comm.): Gilbert (University of Texas at Austin) has “grown *P. rufa* since 1990 or so, prior to” the present “recognition of its status.” He has “also grown *P. jatunsachensis* for at least that long,” as well as “*P. auriculata* from Brazil, Panama, and Costa Rica. Quite often,

large plants of all these clade members will mass flower in the same few-day window even if in different greenhouses. It is as if there are ancestral clock genes shared by all of them that are independent of latitude of the source populations." One of us (JMM) observed the same phenomenon in the greenhouses at MO in the 1990s and that stimulated our interest in this group. It is possible that the plants are responding similarly to an environmental trigger instead of a clock. It would be interesting to check if *P. fanchonae*, another mass flowering species of this group in cultivation, follows the same pattern and synchronicity.

KEY TO THE SPECIES OF SUPERSECTION *AURICULATA*

1. Petiolar nectaries abaxial on appendages continuous with and proximal to the leaf blade (Guianas) _____ **P. fanchonae**
1. Petiolar nectaries abaxial on appendages clearly separate from the leaf blade.
 2. Leaf blades glabrescent or with microscopic trichomes beneath (wide Neotropical distribution) _____ **P. auriculata**
 2. Leaf blades pubescent beneath.
 3. Leaf blades at least 3 times as long as wide sparingly hairy above, shortly hairy beneath (Guianas, Venezuela) _____ **P. angusta**
 3. Leaf blades usually much less than twice as long as wide or abundantly and obviously hairy.
 4. Leaf blades broadly ovate or sub-orbicular, 3–8 × 3.5–7.5 cm, shortly and densely hyaline puberulent on both sides (Amazonian Brazil) _____ **P. cryptopetala**
 4. Leaf blades broadly ovate to narrow ovate, 8–25 × 5–15 cm, indumentum colored and obvious, hirsute above and thick velvety beneath.
 5. Vegetative parts with yellow trichomes; leaf blades elliptic, usually more than twice as long as wide (Napo, Ecuador) _____ **P. jatunsachensis**
 5. Vegetative parts with rufous trichomes; leaf blades ovate to broadly ovate, usually once to twice as long as wide.
 6. Stem angular; bracts setaceous, 1–2 mm long; petals greenish (San Martin, Peru) _____ **P. ferruginea**
 6. Stem terete; bracts narrowly triangular, 2.5 mm long; petals white (Guianas, NE Amazonian Brazil) _____ **P. rufa**

Passiflora angusta Feuillet & J.M. MacDougal, sp. nov. (**Fig. 1 B, F, H; 2 A–C**). TYPE: GUYANA. CUYUNI-MAZARUNI: Utshe River Falls, 5°44'N, 61°08'W, 900–975 m, 24 May 1990, fl., T. McDowell & D. Gopaul 2834 (HOLOTYPE: BRG; ISOTYPES: AAU, B, COL, F, MO, NY, TEX, U, US).

Species haec ad *Passiflora* supersect. *Auriculata* pertinens; ab aliis speciebus foliis angustis, oblongis, laminis 3plo longioribus quam latioribus distincta; ab *P. auriculata* laminis foliorum infra dense pubescentibus distincta.

Herb climbing with tendrils, growing on shrubs. Stems subterete, weakly subangular, drying somewhat striate and sometimes almost glaucous, with short pubescence, apex of growing stem straight. Tendrils weak, short-pubescent. Stipules persistent, narrow-triangular, slightly curved, 0.7–1 mm long, apex acute, margin entire, pubescent. Petiole 5–20 mm long, cylindrical to obscurely canaliculate, pubescent, 2 glands under paired appendages, each appendage lateral, about 1/3 from the base of the petiole, saucer-shape, oval, with a central gland, ring glabrous, about as wide as the gland, ca. 1.7 × 1.1 mm; blade chartaceous to coriaceous, rigid, unlobed, narrow-oblong to narrow elliptic, or lanceolate to rarely obscurely 3-lobed and narrowly ovate, (3–)7–10 × 1–3(–3.5) cm, apex acute to slightly obtuse, base obtuse or rounded to slightly cordate, margin entire, recurved, adaxially shiny, with scattered, short, stiff hair on the veins, abaxially dull, with short, stiff hair, with (1–)2–6(–10) laminar glands, not visible adaxially on dry material, round, with a swollen circular rim, venation pinnate, raised on both surfaces, usually the proximal vein on each side longer but not reaching the margin, 3–5 main veins on each side. Inflorescences 2-flowered, axillary; peduncle lacking; bract near the 2 bracteoles, similar to them; pedicels, 10–15 mm long, joint 1–1.5 mm below the flower, shortly and densely pubescent; bract and bracteoles scattered in the basal 1/3 of the pedicel, persistent, triangular to triangular lanceolate, 1–1.4 mm long, apex acute, margin entire, shortly and densely pubescent. Flowers about 1.5 cm in diameter, yellowish green or yellow-white or green or green-white, fragrant (*Maguire 43838*); hypanthium saucer-shape, short-pubescent; sepals green outside, white to yellowish green inside, narrow triangular, 1.3–1.5 × 0.3–0.4 cm at base, apex acute to blunt in the same flower, margin entire, short-pubescent outside, densely pubescent in the basal 1/3 inside spreading; petals white,

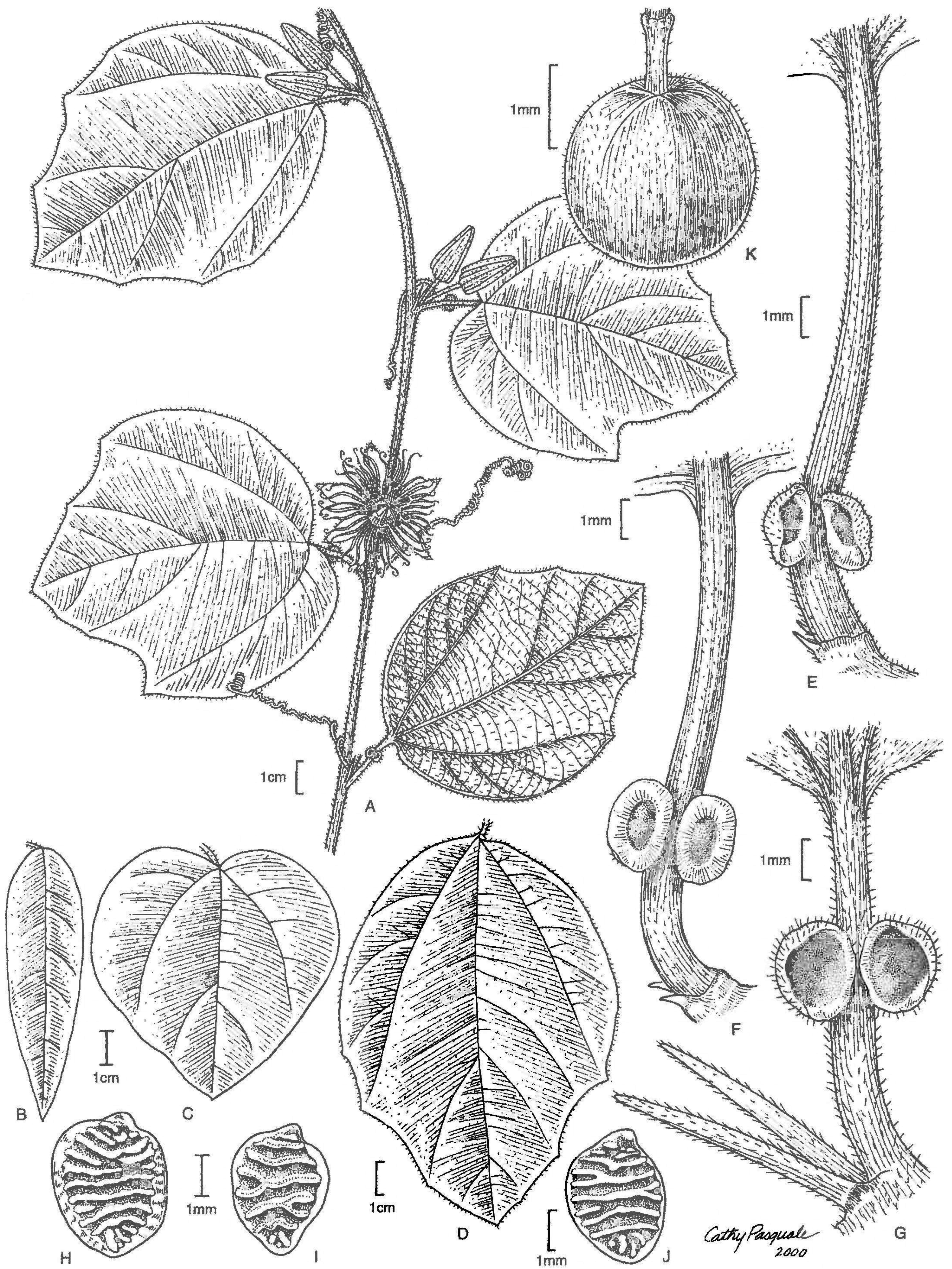


FIG. 1. *Passiflora rufa*: A. Flowering stem; D. Leaf blade; G. Petiole; J. Seed; K. fruit. *Passiflora angusta*: B. Leaf blade; F. Petiole; H. Seed. *Passiflora cryptopetala*: C. Leaf blade; E. Petiole; Seed.—A, D. Feuillet 4711 (holotype: US); B. Maguire et al. 43838 (NY); C, E. Gentry 13058 (MO); F, H. McDowell & Gopaul 2690 (US); G. Cremers 6905 (US); I. Rodrigues & Chagas 12752 (INPA); J. Cremers 6944 (US); K. Grenand & Prévost 2047 (CAY).

linear, $\frac{1}{2}$ to $\frac{3}{4}$ as long as the sepals, very thin, apex aristate, margin entire, glabrous on both surfaces, spreading; corona with 2 rows of filaments, outer row 1–1.5 cm long, widened and flattened at base, curly and attenuate near apex, purplish at base, light green or greenish yellow above, glabrous, inner row 2–5 mm long, capitate, glabrous; operculum membranous, plicate, glabrous; nectar ring not raised, densely and minutely papillose; limen annular, not raised, loosely papillose; androgynophore conical at base, then terete, ca. 0.5 cm long, glabrous; stamen at the base of the ovary, green, filaments narrow, slightly flattened, 0.7–0.8 cm long, glabrous, anthers dorsifixed, oblong, 3×0.7 mm; ovary globose, ca. 2×1.5 mm, densely covered with short thick hair, styles pale yellow, ca. 5 mm long, glabrous, stigmas swollen, facing outward, ca. 1 mm in diameter. Fruits globose, about 1.2–1.5 cm in diameter, green or purplish black, short appressed-pubescent, indehiscent; seeds black, ovate, axis slightly curved, flattened, about 3.5×3 mm, with 6–10 main transversal ridges.

The flowers are described on labels as being yellowish green (*Henkel 1034*), yellow-white (*McDowell 3081*), green (*Maguire 43838*), greenish (*Steyermark 117272*), or green-white (*McDowell 2744, 2834; Kral 72111*). The corona is said to be purple at base and green distally (*Henkel 1034*), olive-green at base (*Maguire 43838*), lavender (*Steyermark 117816*), or purple (*McDowell 2834*). Most collectors have noted the fruits to be green, these sometimes with mature-looking black seeds, but the fruits apparently continue to mature until they are blackish (*Gentry 10570*) or blackish purple (*Benítez 5200*).

Ecology and distribution.—*Passiflora angusta* is an herbaceous climber that crawls on shrubs and small trees in savannahs and savannah-forest ecotones. It is known from Venezuela (Bolívar), western Guyana, and Brazil (Roraima), between (270–)460 and 1300 m.

Etymology.—The epithet *angusta*, Latin for “narrow,” refers to the narrow leaf blades compared to those of *P. auriculata*.

PARATYPES. **VENEZUELA. Bolívar:** Mun. Gran Sabana, desde Santa Elena en el Km 284, 900 m, 8 May 1995, fr., *C. Benítez & W. D’Arcy 5200* (MO); Mun. Rau’l Leoni, Piedra Pintada, area de Pequenna Minería Aza Karón, 270 m, $06^{\circ}19'11''\text{N}$, $63^{\circ}28'00''\text{W}$, 23 May 1992, *W. Diaz 843* (MO); Mun. Gran Sabana, 4.2 km NE de Uriman, 400 m, $05^{\circ}24'\text{N}$, $62^{\circ}42'\text{W}$, Mar 1986, *A. Fernández 2456* (MO); Río Apongua 2, near bridge over river, km 151–152 S of El Dorado, 1200 m, 16 Mar 1974, *A. Gentry et al. 10532* (MO); 133 km S of El Dorado, 1300 m, 16 Mar 1974, fr., *A. Gentry et al. 10570* (MO); Dist. Roscio, 3 km S of El Paují, 1050 m, $4^{\circ}30'\text{N}$, $61^{\circ}35'\text{W}$, 19 Oct 1985, *B. Holst & R.L. Liesner 2356* (MO); 7 km E of Kavanayen, 1100 m, 16 Dec 1984, fl., *R. Kral 72111* (MO); Río Las Ahallas, 17 km E of El Pauji, $4^{\circ}30'\text{N}$, $61^{\circ}30'\text{W}$, 850 m, 30 Oct 1985, fl., *R.L. Liesner 19182* (MO), 1 Nov 1985, fl., *R.L. Liesner 19273* (MO), 1 Nov 1985, fr., *R.L. Liesner 19277* (MO); 0–3 km W of El Polo, NW of El Pauji, $4^{\circ}30'\text{N}$, $61^{\circ}40'\text{W}$, 650–800 m, *R.L. Liesner 19588* (MO); 0–6 km SE of El Pauji, $4^{\circ}30'\text{N}$, $61^{\circ}35'\text{W}$, 800–900 m, 9 Nov 1985, *R.L. Liesner 19778* (MO); 0–2 km W of El Pauji, $4^{\circ}30'\text{N}$, $61^{\circ}35'\text{W}$, 850–900 m, 10 Nov 1985, fl., *R.L. Liesner 19823* (MO); Dist. Piar, Río Aparamán, affluent of Río Acanán near Yuiray-merü rapids, 1.5 km S of SW corner of Amaruay-tepui, 500 m, $05^{\circ}54'\text{N}$, $62^{\circ}15'\text{W}$, *R.L. Liesner & B. Holst 20203* (MO); Dist. Piar, Río Acanán, EDELCA Campo Carrao, 5 km NW of NW corner of Amaruay-tepui, $5^{\circ}57'\text{N}$, $62^{\circ}17'\text{W}$, 470 m, 3 May 1986, *R.L. Liesner & B. Holst 20540* (MO); 10 km of Karaurin Tepui, $5^{\circ}19'\text{N}$, $61^{\circ}03'\text{W}$, 900–1000 m, 24 Apr 1988, fr., *R.L. Liesner 23757* (MO); 5 km S of San Ignacio de Yuruani, $4^{\circ}59'\text{N}$, $61^{\circ}10'\text{W}$, 850 m, 9 May 1988 fl., *R.L. Liesner 24402* (MO, US); Cumbre de cerro Guaiquinima, entre el afluyente del río Carapo (1 km río arriba del Salto Szczerbanari) y los peñascos al S del río, 730–900 m, $05^{\circ}44'4''\text{N}$, $63^{\circ}41'8''\text{W}$, 24 May 1978, fl., *J. Steyermark et al. 117272* (MO); Quebrada El Cajón, Puente Luis Raúl Vásquez Z., 26.5 km al E de Icabarú, 750 m, $04^{\circ}25'\text{N}$, $61^{\circ}32'\text{W}$, 18 Dec 1978, fl., *J. Steyermark et al. 117816* (MO); Distr. Roscio, 7.5 km NE de Santa Elena de Uairén, 880 m, $4^{\circ}40'\text{N}$, $61^{\circ}04'\text{W}$, 3 Dec 1982, *J. Steyermark & R.L. Liesner 127570* (MO). **GUYANA. Cuyuni-Mazaruni:** Imbaimadai Savannahs, near mouth of the Partang River, 460 m, 14 Jun 1960, fl., *B. Maguire, S.S. Tillett & C.L. Tillett 43838* (NY); Top of Warama Tipu, small Mt. across Karamang River, N to Paruima village, $5^{\circ}50'\text{N}$, $61^{\circ}04'\text{W}$, 530–610 m, 20 May 1990, fr., *T. McDowell & D. Gopaul 2690* (BRG, NY, US); Utshe camp, 0.3 km N of Utshe River, $5^{\circ}45'\text{N}$, $61^{\circ}08'\text{W}$, 975 m, *T. McDowell & D. Gopaul 2744* (MO); 7 km N of Paruima village, near Mt. Waleliwatipu, $5^{\circ}54'\text{N}$, $61^{\circ}02'\text{W}$, 980–1060 m, 30 May 1990, fr., *T. McDowell & D. Hughes 2982* (BRG, US); Macaw creek to Holitipu Camps, hillside of Kartabo Mt., $6^{\circ}00'\text{N}$, $61^{\circ}05'\text{W}$, 580–1100 m, 4 Jun 1990, fl. & fr., *T. McDowell & D. Gopaul 3081* (BRG, US). **Potaro-Siparuni:** Pakaraima Mts., south rim of summit ridge, Cipo Mtn., 2–4 km from Cipo Creek, $4^{\circ}54'\text{N}$, $60^{\circ}05'\text{W}$, 1250 m, 28 Jan 1993, fl., *T.W. Henkel, M. Chin & W. Ryan 1034* (BRG, U, US); Pakaraima Mts., headwaters of the Mazaruni R., W of Imbaimadai, $5^{\circ}43'\text{N}$, $60^{\circ}20'\text{W}$, 21 Jun 1986, fr., *J.J. Pipoly 7944* (BRG, CAY, NY, US). **BRAZIL. Roraima:** 1300 m, Dec 1909, fl., *E. Ule 8665* (B?, K, MG, U, US).

Passiflora cryptopetala Hoehne, Comm. Linh. Telegr. Matto Grosso Ann. 5: Bot. pt. 5:76; pl. 112. 1915.

(**Fig. 1 C, E, I; 2 D-F**). LECTOTYPE: BRAZIL: near the trijunction point between Amazonas, Pará & Mato Grosso, near San Manuel, Feb 1912, fl., *Hoehne Comissão Rondon 5178* (HOLOTYPE: R; photograph in Hoehne 1915).

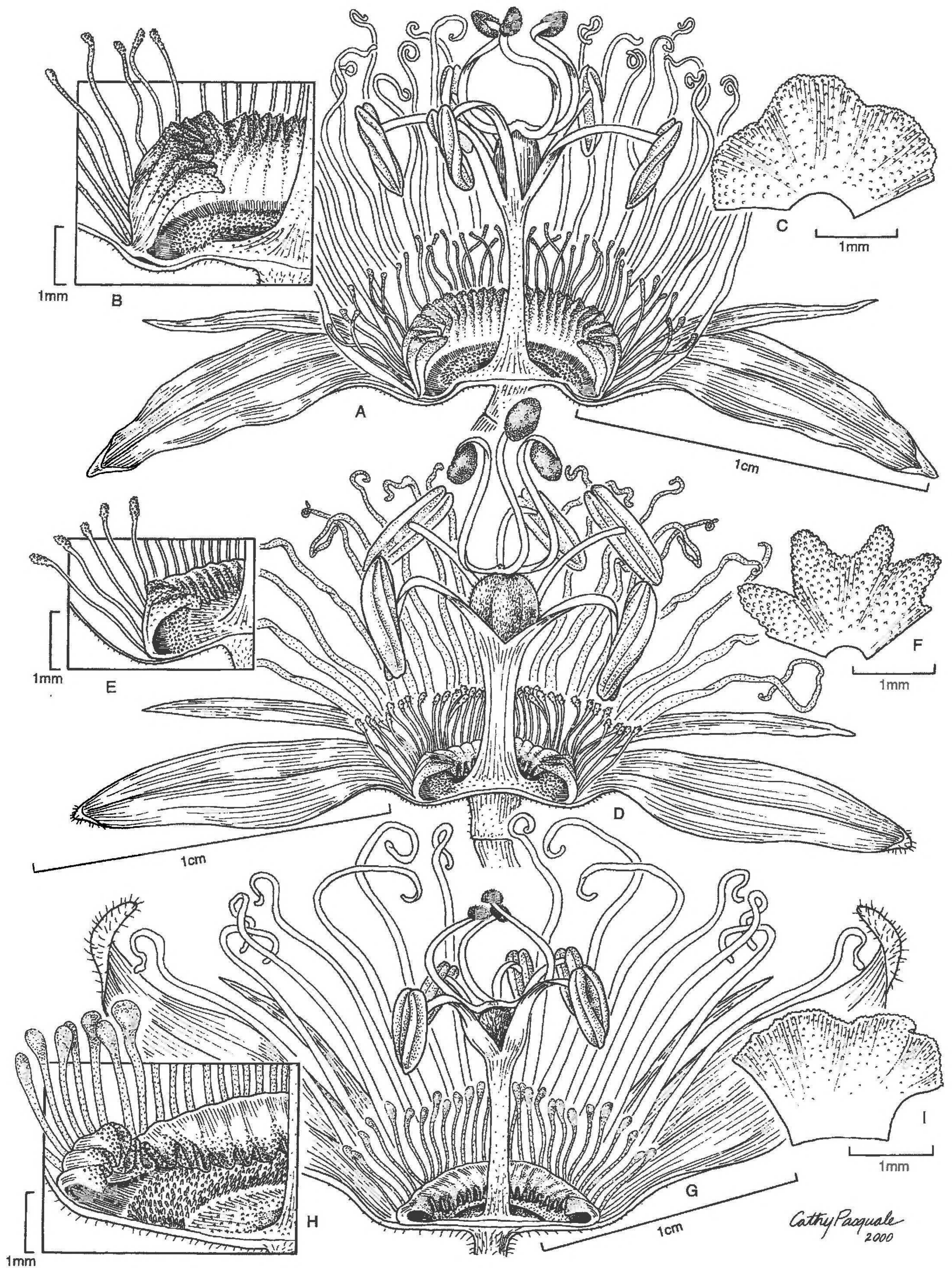


FIG. 2. *Passiflora angusta*: A. Flower (longitudinal cut); B. Detail showing the corona, the plicate operculum, and the floral cup; C. Operculum unfolded (partial); *Passiflora cryptopetala*: D. Flower (longitudinal cut); E. Detail showing the corona, the plicate operculum, and the floral cup; F. Operculum unfolded (partial). *Passiflora rufa*: G. Flower (longitudinal cut); H. Detail showing the corona, the plicate operculum, and the floral cup; I. Operculum unfolded (partial).—A–C. McDowell & Gopaul 3081 (US); D–F. Gentry 13058 (MO); G–I. Feuillet 4711 (holotype: US)

Herbaceous to suffruticose climber with tendrils. Stems terete, minutely puberulent, apex of growing stem straight, striate. Tendrils few. Stipules scale-like, triangular 0.2–0.3 mm long, pubescent. Leaves alternate; petiole 1.5–2 cm long, pubescent, 2 glands under paired appendages, each appendage lateral between middle and ca. 1/4 from the base of the petiole; blade wide-ovate or sub-orbicular, 3–8 × 3.5–7.5 cm, apex obtuse or rounded or abruptly and shortly acuminate, base slightly cordate or round, margin entire or with 2 obscure teeth or mucros, shortly and densely puberulent on both sides, with 1–3 glands between the midrib and the main lateral vein on each side, occasionally between the lateral vein and the margin. Inflorescences 2-flowered, axillary; peduncle lacking; bract near the 2 bracteoles, similar to them; pedicels erect, recurved when bearing the fruit, about as long as the petiole, pubescent, joint 1.5–2 mm below the flower; bracteoles near the base of the peduncle, triangular, ca. 1 mm long, pubescent. Flowers white, 2.5–3 cm in diameter; hypanthium saucer-shaped, outside minutely puberulent, yellow-orange inside; sepals lanceolate, 0.7–1 cm long, white adaxially, outside minutely puberulent; petals linear, shorter and much narrower than the sepals; corona in 2 rows, filaments of the outside row spreading, purplish at base, ligulate, filiform at apex, those of the inner row oblique or erect, filiform, capitate; operculum membranous, plicate, erect somewhat curved inward in apical half; androgynophore 3–4 mm long, glabrous; stamen anthers linear-oblong, slightly purplish at margin; ovary ovoid, pubescent. Fruit globose, ca. 2 cm in diameter, with short indumentum; seeds ovate, axis slightly curved, flattened, ca. 3 × 2 mm, with 5–6 main transversal ridges.

Killip (1938) offered a broad concept of *P. auriculata* Kunth and placed *P. cryptopetala* Hoehne in its synonymy. We consider the plant to deserve recognition at the rank of species. The original description of *P. cryptopetala* was illustrated by a photograph of a herbarium specimen. The above description was drawn from Hoehne's original description and the specimens cited below. The dried fruits of Rodrigues & J. Chagas 4482 are dark colored, suggesting they might have been dark purple or black when ripe like in most species in this group.

Ecology and distribution.—Amazonian Brazil, on river banks and non-flooded moist forests.

Vernacular name.—Maracujá bravo (Brazilian Portuguese: Chagas s.n. and Rodrigues & Chagas 4482).

Additional specimens. **BRAZIL. Amazonas:** Fazenda Dimona, 72 km N of Manaus, 2°19'S, 60°05'W, 50–125 m, 15 Feb 1989, M. Pacheco, E. Palheta & S. de Souza 202 (INPA, NY); Manaus, estrada do Igarapé do Passarinho, 8 May 1962, fr., W. Rodrigues & J. Chagas 4482 (INPA); Manaus, estrada da Forquilha, marg. Igarapé da Cacheira Alta, 13 Aug 1956, J. Chagas s.n. (INPA 4083) (INPA); Manaus-Itacoatiara Rd, km 84, 3 Dec 1974, fl., A. Gentry 13058 (INPA, MO). **Pará & Mato Grosso:** near the trijunction point between Amazonas, Pará & Mato Grosso, near San Manuel, Feb 1912, fl. & fr., Hoehne Comissão Rondon 5176 (R), fl., Hoehne Comissão Rondon 5177 (R). **Pará:** Alto Tapajós, Vila Nova, perto da Cachoeira do Chacorão, 21 Jan 1952, fr., J.M. Pires 3986 (US).

Passiflora rufa Feuillet & J.M. MacDougal, sp. nov. (**Fig. 1 A, D, G, J, K; 2 G–I**). TYPE: FRENCH GUIANA.

MONTAGNES DE KAW: between Roura and Camp Caïman, ca. 10 km from Roura, 12 Mar 1988, fl., C. Feuillet 4711 (HOLOTYPE: US; ISOTYPES: CAY, P, U).

Species haec ad *Passiflora* supersect. *Auriculata* pertinens; a *P. ferruginea* laminis foliorum margine non crassi-obtusidentatis ad apicem nervorum principalium, ab aliis speciebus foliis rufo-pubescentibus distincta.

Herbaceous to woody climber with tendrils, to 15–20 m high, mostly rufous-tomentose. Stems terete, striate when dry, green to rufous, tomentose, apex of growing stem straight. Tendrils strong, rufous, tomentose. Stipules usually persistent, narrow triangular, 5–7 mm long, acute, margin entire, rufous-tomentose. Petiole reddish brown, canaliculate, 1.5–3.5 cm long, tomentose, 2 glands under paired appendages, each appendage lateral, about 1/3–1/2 from the base of the petiole, 1.5–2 × 2–3 mm, saucer-shape, rufous, oval, with a central gland, greenish black; blade becoming chartaceous, ovate, 9–25 × 5–15 cm, apex acute, base cordate, obscurely 3–5-lobed or margin entire, with a few laminar glands on each side in the sector defined by the midrib and the 2 basal veins, round, with a raised rim, ca. 1 mm in diameter, adaxially dark green, stiff hirsute (usually appressed when dry), abaxially pale green, rufous-tomentose, venation 3(–5)-palmate, rufous beneath, raised on both surfaces, camptodromous, 1–3 main veins on each side, secondary venation scalariform. Inflorescences 2-flowered, axillary; peduncle lacking; bract near the 2 bracteoles, similar to them; pedicels 2, spreading, 1.5 cm long, rufous, rufous-tomentose, joint 1 mm below the flower; bract and

2 bracteoles scattered in the basal 1/5, persistent, narrow triangular, 2.5 mm long, apex acute, margin entire, rufous tomentose. Flowers facing upward, yellowish white, fragrant; hypanthium saucer-shaped, ca. 0.8 cm in diameter, yellowish green to rufous green and rufous pubescent outside, yellowish green inside; sepals triangular, 1.5–2 × 0.6–0.9 cm long, apex rounded with a subapical short awn, yellowish green to rufous green and rufous pubescent outside, whitish and glabrous inside, spreading; petals linear, 7–8 × ca. 1 mm, thin, apex acute, whitish transparent when dry, glabrous, spreading; corona with 2 rows of filaments, outer row 1.5–2 cm long, laterally flattened, spreading, green at base and green spotted with violet brown in the middle, the apical 1/3 filiform, yellow, contorted, inner row capitate, ca. 3 mm long, pale yellow-green, white at apex; operculum plicate, erect, ca. 2 mm tall, whitish; nectary ring slightly swollen, pale yellowish green; limen not raised, whitish; androgynophore terete, 0.6–0.7 cm long, greenish to green spotted with violet; stamen just below the ovary, filaments flat, narrow, ca. 0.6 cm long, greenish white, anthers dorsifixed, elliptic, 4 × 1.5 mm, yellowish; ovary globose, 2–2.2 × 1.8–2 mm, pale green, densely pubescent, 0.6 cm long, greenish white, glabrous, stigmas ca. 1 mm in diameter, pale yellow. Fruits pendent, globose, 1.5–2 cm in diameter, black, hirsute, trichomes white, pulp white, indehiscent; seeds ovate, axis slightly curved, flattened, about 3 × 2.5 mm, with 5–6 main transversal ridges, black.

The new species resembles *P. ferruginea* from Peru by its leaf size, shape, and rufous pubescence. *Passiflora rufa* has 2–6 lateral veins reaching the margin, forming small teeth (Fig. 1 A & D). In *P. ferruginea* the main veins reaching the margin form a hardened mucro, an uncommon character in the genus.

Passiflora auriculata does not have the rufous pubescence of *P. rufa* and is mostly glabrous or glabrescent with microscopic trichomes. In French Guiana, the ripe fruits of *P. auriculata* are yellow to orange, those of *P. rufa* are dark violet to black, and those of *P. fanchonae* cherry to dark red.

Distribution and ecology.—*Passiflora rufa* has been collected on the Guiana shield and the Amazonian basin. The species of supersection *Auriculata* in French Guiana colonize different niches: *Passiflora rufa* grows on slopes or well drained areas, on lateritic soil or forest humus, at the edge of forest, *P. fanchonae* has been collected near temporary pools or drainage ditches in forested areas, on red soil or forest humus, and *P. auriculata* is found at the edge of permanent pools or creeks, generally in open vegetation, mostly on sand.

Etymology.—The new species is named *rufa* for the rufous trichomes that cover the vegetative parts of the plant.

Paratypes. **BRAZIL. Amazonas:** Manaus, Estrada do Paredão, 8 Apr 1943, fl., A. Ducke 1213 (MG leaf fragm.); Pará: Munic. Paragominas, 17 km S of Ligação along Belém – Brasília Highway, near km marker 1509, 250 m, 2 Mar 1980, fr., T. Plowman, G. Davidse, N.A. Rosa, C.S. Rosário & M.R. dos Santos 9440 (MG). **GUYANA. Barima-Waini:** Aranka R. head, settlement W of Baramita, 7°25'N, 60°32'W, 107 m, 9 Apr 1991, fr., T. McDowell 4327 (BRG, US). **SURINAM. Sipaliwini:** near riv. Itany, 3 km upward from Cr. Koulé-Koulé, 25 Jul 1985, st., C. Feuillet 2803 (CAY, US). **FRENCH GUIANA:** Approuague riv. basin, Road Cayenne – Régina, km 50, 11 Jun 1984, fl., C. Feuillet 1402 (CAY, P); km 48, 4 May 1979, fr., M.F. Prévost 575 (CAY(2), US); Route de Bélizon, 11 km off road Cayenne – Régina, 52°20'W, 4°25'N, 19 Feb 1988, st., C. Feuillet 4577 (US); Route de Bélizon, 17 km off road Cayenne – Régina, 52°20'W, 4°25'N, 1 Jun 1988, C. Feuillet 9857 (CAY, US); Station des Nouragues, 27 Feb 1987, seedlings, M.F. Prévost 2216 (CAY); Comté riv. basin, between Route Nationale 2 and Cacao, 52°25'W, 4°33'N, 8 Jul 2005, fl., M.F. Prévost 4876 (CAY, K, MO, P, US), Montagne Cacao, 17 Jan 1983, fl., C. Feuillet 545 (CAY, P); 52°27'W, 4°33'N, 1 Jun 1988, fr., C. Feuillet 9848 (CAY, US); 3–4 km from Cacao, N slope, 52°30'W, 4°35'N, 25 Mar 1985, fr., L.E. Skog & C. Feuillet 5683 (CAY). **Montagne de Kaw:** between Roura and Camp Caïman, 15 Jun 1979, fr., G. Cremers 5780 (CAY(3), US); near Camp Caïman, ca. 22 km from Roura, 23 Nov 1980, fl., G. Cremers 6905 (CAY, US); 9 Jan 1981, fl., C. Feuillet 178 (CAY); western slope, 27 Dec 1980, fl. & fr., G. Cremers 6944 (CAY(2), P, US); 17 Apr 1985, fr., C. Feuillet 2098 (CAY, P); 18 Apr 1985, st., C. Feuillet 2105 (CAY, P); 8 km from Roura, 52°9'12"W, 4°33'N, 26 Nov 1985, fr., C. Feuillet 2884 (CAY, MO, P, US) & seedlings, 2884A (CAY); summital plateau, 28 Feb 1988, C. Feuillet 4672 (CAY); Oyapock riv. basin, near Cr. Patawa, near St.-Georges-de-l'Oyapock, 17 Apr 1981, fr., P. Grenand & M.F. Prévost 2047 (CAY, US); 16 May 1983, fr., M.F. Prévost 1378 (CAY(2)).

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REFERENCES

- FEUILLET, C. AND J.M. MACDOUGAL. 1999. Infrageneric classification of *Passiflora*. In: XVI International Botanical Congress, St Louis, MO.
- FEUILLET, C. AND J.M. MACDOUGAL. 2003 [May 2004]. A new infrageneric classification of *Passiflora* L. (Passifloraceae). *Passiflora* 13(2):34–38.
- HANSEN, A.K., L.E. GILBERT, B.B. SIMPSON, S.R. DOWNIE, A.C. CERVI, AND R.K. JANSEN. 2006. Phylogenetic relationships and chromosome number evolution in *Passiflora*. *Syst. Bot.* 31:138–150.
- KILLIP, E.P. 1938. The American species of Passifloraceae. *Publ. Field Mus. Nat. Hist., Bot. Ser.* 19:1–613.
- LINNAEUS, C. 1753. *Passiflora*. In: *Species Plantarum*. Salvius, Stockholm. 2:955–960.
- MACDOUGAL, J.M. AND C. FEUILLET. 2004. 2. Systematics. In: T. Ulmer and J.M. MacDougal, eds. *Passiflora*, Passionflowers of the world. Timber Press, Portland, OR. Pp. 27–31.